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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/724,105	11/28/2000	Graham P. Allaway	51320-AA/JPW/MAF	6247

7590 03/23/2005

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EXAMINER	
LI, BAO Q	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/724,105	ALLAWAY ET AL.	
	Examiner	Art Unit	
	Bao Qun Li	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/22/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 6, 8-9, 11, 13, 17, 19, 22, 26-27, 31, 36 and 43* is/are pending in the application.

4a) Of the above claim(s) *1,6, 8,11,13,17, 19, 22, 26, 27, 31, 36 and 43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08/13/01, 08/02/04, 4/08/02
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

An acknowledgment is made to the preliminary amendments submitted on 11/28/2000. In this amendment, claims 2-5, 7, 10, 12, 14-16, 18, 20-21, 23-25, 28-30, 32-35, 37-42 and 44 were canceled. Claims 11, 26 and 48 were amended.

An acknowledgment is made to the second preliminary amendment submitted on 11/22/2004. In this amendment, claims 45-48 were canceled.

Thus, claims 1, 6, 8-9, 11, 13, 17, 19, 22, 26-27, 31, 36 and 43 are pending.

Election/Restrictions

1. Applicant's election with traverse of group III, claim 9 in the reply filed on 11/22/2004 is acknowledged. The traversal is on the ground(s) that the inventions of Groups I-X are not independent because claimed subject matters in different groups are all related to CCR5, and searching them together would not constitute a serious burden.

2. The augment has been fully considered; however, it is not found persuasive. Because although each of claimed products has some relationship with CCR5, they are not related each other among themselves both in structure and function as described in the previous Office Action. In this office Action, the examiner still emphasizes that the unrelated is due to their different status of art as showing by their different classifications and different search requirements. For example, searching polypeptide/peptide of a chemokine receptor does not need to search HIV envelope protein or CCR5 antibody or small molecule or compound, and vice-versa. Moreover, the searching antibody of CCR5 does not overlap with search of polypeptide or peptide of chemokine receptor CCR5 or HIV-1 envelope or any small molecule or compound or vice-versa. Still Further, a search of the polypeptide of chemokine in group I would not be used to determine the patentability of an antibody of CCR5 of group III and vice-versa. A search of the polypeptide of HIV envelope protein in group II would not be used to determine the patentability of an antibody of CCR5 of group III and vice-versa. A search of the small molecule or compound of CCR5 antagonist in group IV would not be used to determine the patentability of an antibody of CCR5 of group III and vice-versa. Therefore if searching all of them together would constitute a serious burden for the examiner.

3. Regarding to the product and product making and product of using claims, As motioned in the previous Office Action, a rejoinder will take place only until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained.

4. The requirement is still deemed proper and is therefore made FINAL.

5. Claim 9 is considered, and claims 1, 6, 8, 11, 13, 17, 19, 22, 26, 27, 31, 36, 43 are withdrawn from the consideration.

Sequence requirements

6. This application contains sequence disclosures in Fig. 4 and on Table 4 on page 45 that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 for the reason(s) set forth on the attached Notice To Comply With Requirements For Patent Applications Containing Nucleotide Sequence And/Or Amino Acid Sequence Disclosures.

7. Please identify the sequence identification numbers (SE ID NO) to the disclosed sequences listed above for full compliance with the sequence rules in response to this Office Action. A complete response to this office action should include both compliance with the sequence rules and a response to the Office Action set forth below. Failure to fully comply with **both** these requirements in the time period set forth in this office action will be held non-responsive.

Information Disclosure Statement

8. The references copies of information disclosure statements submitted on August 13/2001, January 28, 2002, and August 24, 2004 have been all found in the current application as well as in the parental application SN. 08,874,618. They are all considered and signed by the examiner.

Priority

9. Applicant's claim for domestic priority of provision application 60/019,941, filed on June 14, 1996 under 35 U.S.C. 119(e) is acknowledged. The provision application has been carefully

reviewed. However, the benefit to the earlier filing date of provisional application is denied. Because the provision application lacks an adequately enabled description that supports the currently examining claim 9 under 35 U.S.C. 112.

10. The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

11. In the instant case, after carefully reviewing the provision application, the examiner found that the provision application only has 39 pages in content, 1 series of experiment and 3 Figures, which only discloses that β chemokines, native ligands of CC-CKR5 (CCR5 synonym), can inhibit macrophage tropic HIV-1 infection. However, there is no enablement disclosure of any CCR5 antibody except one sentence of a superficial description: "This invention provides an antibody or a portion thereof antibody thereof capable of binding to a chemokine receptor on a CD4 cell and inhibiting HIV-1 infection of the cell" (See lines 10-13 on page 12: a same content in claim 7). There is not method of making or method of using the antibody either. It was not until the parental application 09/874,618 was filed that an examples that describe an anti-CCR5 antibody is included in the specification. Moreover, the examiner would like to point out that the current application and the parent application 08/874,618 contain a new portion and disclosure from page 40 to 81 including 10 more figures and three more series of experimentations, especially the enablement disclosure of a CCR5 antibody.

12. The content that disclosure teaches that a CCR5 antibody, 2D7 is able to bind to CCR5 and competes with M-tropic HIV-1 envelope gp 120 binding to the CCR5 on the CD4/CCR5+ target cells (See page 63-66 and Fig. 7). The interruption of the M-tropic HIV-1 envelope protein gp120 binding to the N-terminal of CCR5 is a key process of HIV-1 M-tropic envelope gp120 mediated fusion that establishes the HIV-1 infection to the target cell.

13. Applicant's claim for domestic priority of non-provision application 08/874,618, filed on June 13, 1997 under 35 U.S.C. 120 is acknowledged. Because it contains the same content of

current application, the priority of the current application is considered to be the early filling date of the parent application 08/874,618, but not 06/14, 1996 for the examination on the record.

Claim Rejections - 35 USC § 101

14. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

15. The invention of claim 9 is directed to non-statutory subject matter. There is no recitation of isolation or purified in front of the claimed antibody. Therefore, the claimed antibody read on naturally occurring material, which are considered to be non-statutory and non-patentable subject matter within the scope of 35 U.S.C. 101. See Official Gazett, 1077 O.G. April 21, 1987. Amending claim to incorporate "[an] isolated or purified" in front to antibody or portion of antibody" would overcome this rejection.

Double Patenting

Claim 9 encompass the scope including:

(A). An antibody capable of binding to CCR5 chemokine receptor on a CD4+ cell and inhibiting HIV-1 infection on the cell;

(B). A portion of an antibody capable of binding to CCR5 chemokine receptor on a CD4+ cell and inhibiting HIV-1 infection on the cell.

The following ODP rejections are based on the full scope of claim 9 that read on the both aspect of the scope.

Double Patenting

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

17. Claim 9 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 98-134 of copending Application No. 09,594,983. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scopes of conflict claims are overlapping.

18. An obvious-type double patenting rejection is appropriate where the conflict claims are not identical, but an examined application claim is not patentably distinct from the reference claim(s) because the examined claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g. Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887,225 USPQ 645 (fed. Cir. 1985).

19. In the instant case, claim 98-134 teaches several species of CCR5 antibody, which is inherently capable of binding to the CCR5 on the CD4+ cells and inhibit HIV infection in the cells as evidenced by disclosure of the application in lines 5-11 on page 22 and 28-36. Therefore, the species of claims 98-134 anticipate the generic antibody of claim 9.

20. Regarding to part (B) of claim 9, because the method of making a fragment of an antibody is well known in the art, it would have been obvious for the person with ordinary skill in the art to make the fragment of an antibody absence of unexpected result.

21. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

22. Claim 9 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of copending Application No. 10,371,483. Although the conflict claims are not identical, they are not patentably distinct from each other because the scopes of the conflict claims are overlapping.

23. In the present case, claims 1-5 are directed to particular anti-CCR5 antibody or fragment therefor that binds to CCR5 on the surface of a CD4+ human cell. The characteristic of this antibody is to bind CCR5 on CD4+ cell and inhibit the HIV-1 infection as evidenced by applicants' own disclosure of pages 11-17, Figs. 10-19 and claim 20. Therefore, the species of CCR5 antibody or fragment thereof disclosed in claims 1-5 anticipates the generic antibody and fragment of claim 9.

24. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

25. Claim 9 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 15-17 of copending Application No. 09,412,284 because the scopes of conflict claims are overlapping.

26. In the instant case, claims 15-17 are directed to a monoclonal antibody isolated by a particular process of inhibiting macrophage tropic HIV-1 (M-tropic), rather than T-cell tropic envelope protein mediated fusion, wherein the antibody does not react with HIV-1 envelope protein or CD4, rather it reacts with an antigen on the surface of the PM-1 cells. Because CCR5 is the cofactor mediated M-tropic HIV-1 envelope protein fusion to the target cell and target cell PM-1 is a CD4+ cell that expresses CCR5 on its surface as evidenced by Olson et al. (J. Virol. 1999, Vol. 73, No. 5, pp. 4145-4155, see paragraph in the section of MATERIALS AND METHODS on page 4146), the monoclonal antibodies of claims 15-17 belongs to a species of the generic antibody of claim 9, and it therefore anticipates claim 9 (A).

27. Regarding to part (B) of claim 9, because the method of making the fragment of antibody is well known in the art, it would have been obvious for the person with ordinary skill in the art to make the fragment of an antibody if the antibody is already known and/or generated absence unexpected result.

28. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

29. Claim 9 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 51-56 of copending Application No. 09/888,938. While the conflicting claims are not identical, they are not patentably distinct from each other because the scopes of conflict claims are overlapping.

30. In the instant case, claims 51-56 are directed to an antibody or preferably a monoclonal antibody binding to a chemokine receptor CCR5 on CD4+ cell preferably PM-1, primary CD4+ T cell and PBMC, and inhibiting the HIV-1 infection on this type of cell. Because PM-1 cell, PBMC as well as macrophage depleted T-cell fraction in PBMC are all CD4+, and CCR5 expressing cells as evidenced by Deng et al. (Nature 1996, Vol. 381, pp. 663-665, see section of Expression of CC-CKR5 on pages on 64-65), they are all species of generically claimed CD4/CCR5 positive expressing cells in claim 9, Therefore, the scope of conflict claims are overlapping and the species of the invention anticipates the generic of claim 9 (A).

31. Regarding to part (B) of claim 9, because the method of making the fragment of antibody is well known in the art, it would have been obvious for the person with ordinary skill in the art to make the fragment of an antibody if the antibody is already known and/or generated absence unexpected result.

32. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

33. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

34. Claim 9 is rejected under 35 U.S.C. 102(a) as being anticipated by Wu et al. (J. Exp. Med. May 5, 1997, pp. 1681-1691).

35. Wu et al. teach that they have isolated several anti-CCR5 monoclonal antibodies designated as 3A9, 5C7, 2F9, 3D8, 2C4, 5D7, 5H11 and HG4 (last paragraph of 1st column of page 1683). They particular demonstrate that the antibody 3A9 competes with CCR5 native chemokine ligands for binding to CCR5 (See 1st paragraph on Results on page 1683, Fig. 5 & Fig. 6 on page 1687), and inhibit macrophage-tropic HIV infection on peripheral blood mononuclear cells (Fig. 6 on page 1687). Therefore, the claimed invention is anticipated by the cited reference.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

36. Claim 9 is rejected under 35 U.S.C. 102(e) as anticipated by Littman et al. (A) (US 5,939,320A) or (B) (US 6,258,527B1).

37. Littman et al. (A) or (B) teach that CC-CKR5 (synonym of CCR5) is a fusion cofactor for macrophage tropic HIV (M-tropic). They name this receptor as a HIV translocation promoting agent that acts in conjunction with CD4 to facilitate the HIV-1 macrophage envelope protein mediated fusion and penetration into the target cell to establish HIV infection (See lines 38-65 on col. 2). Littman et al. further teach that such antibody can bind to CC-CKR5 and block the M-tropic envelope of HIV-1 mediated fusion and infection (A: lines 19 on col. 20 through line 37

on col. 24, or B: lines 36 on col. 22 through line 45 on col. 27). Therefore, the cited reference anticipates the claim.

38. The priority date of Littman et al. patent is based on the earlier filling date on provisional application 60,017,157, may 20, 1996). Since it has a disclosure of an antibody against CC CKR5 (See claims 1, 7-12 and entire document)

39. Claim 9 s rejected under 35 U.S.C. 102(e) as being anticipated by Wu et al. (6,528,625 B1).

40. Wu et al. disclose an isolated anti-CCR5 monoclonal antibody or fragment thereof including monoclonal antibody 2D7 and 5C7, wherein the monoclonal antibody 2D7 is able to bind to the second loop of CCR5, inhibit the HIV-1 gp120 binding to CCR5 on the target cell, and blocks wide range of M-tropic and dual tropic HIV-s isolates entry to the target cells (See line 51 on col. 37 through line 63 on col. 40). Therefore, the claimed invention is anticipated by the cited reference.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao Qun Li whose telephone number is 571-272-0904. The examiner can normally be reached on 7:00 am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on 571-272-0902. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bao Qun Li MD 02/18/2005

Baoqun Li